WHAT IS CLAIMED IS:

1. Process for the sterile packaging of a prosthetic implant made of polyethylene, of the type in which, successively, the implant is placed in a flexible, gas-impermeable sachet comprising an opening adapted to be sealed, a vacuum is created in the sachet before it is closed hermetically by sealing its opening, and the implant placed in the sachet *in vacuo* is sterilized by irradiation,

wherein it comprises steps carried out successively before the irradiation of the implant placed in the first sachet *in vacuo* which consist in:

- placing the sachet *in vacuo* containing the implant in a gas-impermeable envelope comprising an opening adapted to be sealed,
- forming an inert gaseous atmosphere in the envelope, and
- closing the envelope hermetically by sealing its opening.

2. The process of Claim 1, wherein the closure of the sachet and/or of the envelope is effected by heat-sealing their respective openings.

3. The process of Claim 1, wherein the inert gaseous atmosphere formed in the envelope is constituted by argon, nitrogen or a mixture of these gaseous elements.

4. The process of Claim 1, wherein the sachet comprises a layer of aluminum.

5. The process of Claim 1, wherein the envelope comprises a layer of polyamide and a layer of polyethylene.

6. The process of Claim 1, wherein it comprises, in order to form the inert gaseous atmosphere in the envelope, steps consisting in:

- creating a vacuum around and inside the envelope, and

- injecting an inert gas inside the envelope until the pressure inside the envelope reaches a predetermined value strictly less than atmospheric pressure,

and, after having hermetically closed the envelope, the latter is subjected to atmospheric pressure.

7. The process of Claim 6, wherein the inert gas is injected in calibrated manner.

8. The process of Claim 1, wherein, before or after irradiation of the implant, the assembly formed by the implant, the sachet and the envelope is placed in a rigid packing whose internal volume is substantially equal to the volume occupied by the envelope.

9. The process of Claim 8, wherein, before placing the assembly formed by the implant, the sachet and the envelope in the rigid packing, the envelope is folded on itself.

10. The process of Claim 8, wherein the rigid packing and the envelope cooperate by complementarity of shape in order to immobilize the sachet containing the implant.